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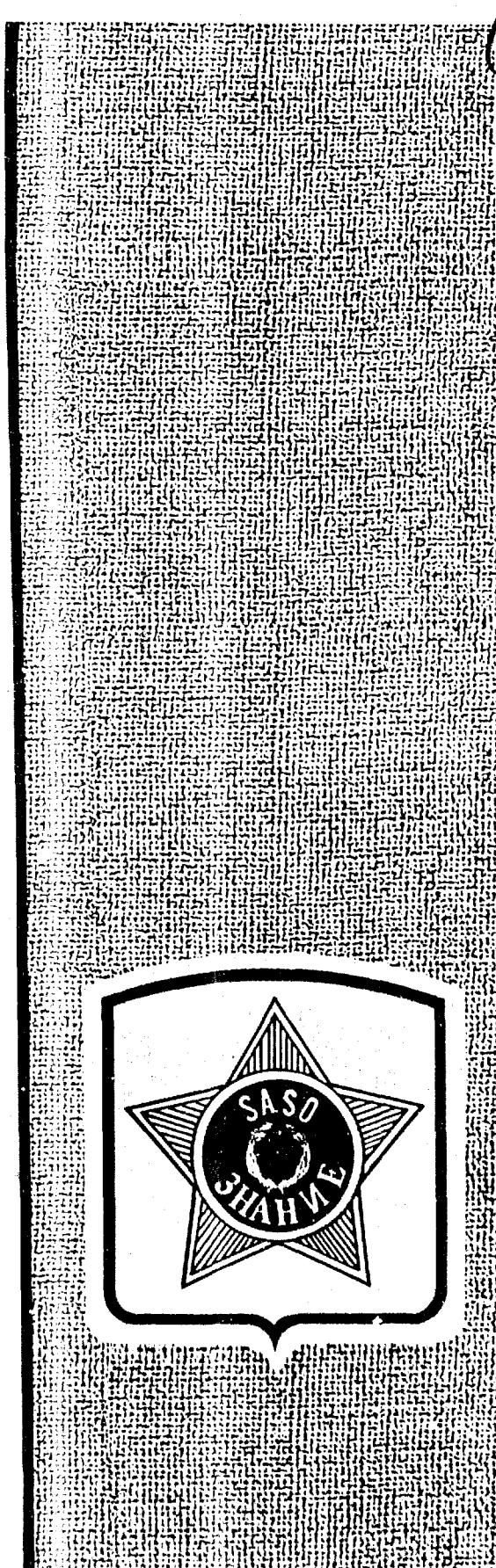
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UNDERSEA WARFARE IN RUSSIAN AND SOVIET NAVAL ART,  
1853-1941\*

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This paper was prepared for the Dalhousie University Conference on "Undersea Dimensions of Maritime Strategy," which was held in June 1989 in Halifax, Nova Scotia, Canada.

\*The views expressed in this paper are those of the author and should not be assumed to represent those of the US Department of Defense or Department of the Army.

## UNDERSEA WARFARE IN RUSSIAN AND SOVIET NAVAL ART

O Constantine, Constantine, mind what I say,  
With the English and French Fleets no dodges do play,  
You thought you could sink us by infernal machines,  
But another time, you'd better try fairer means.<sup>1</sup>

### INTRODUCTION

The term "submarine warfare" [podvodnaia voina], defined as "the combat actions of submarines with the objective of disrupting oceanic (maritime) transport and the destruction of enemy ships at sea and in bases," is treated by Soviet naval analysts as a foreign term, which emerged during World War I and the German U-Boat campaigns.<sup>2</sup> With some justification Soviet authors can assert that Russian and Soviet naval art have approached the use of undersea assets from a radically different perspective, dictated in large measure by the nature of the maritime theaters in which its naval forces have operated, the character of the opponents, and the overall content of the wars in which the Russian and Soviet state found itself involved.

This approach, which evolved out of and as part of the general naval posture, was historically very different from that of the two dominant paradigms of naval power to be found in the examples of the maritime powers (Great Britain) of command of the

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<sup>1</sup> William Gerard Don, Reminiscences of the Baltic Fleet of 1855 (Brechin: D. H. Edards, Advertiser Office, 1894) Reprinted: London: Cornmarket Press, 1971, p. 129. The final verse of a gunroom song from The Duke of Wellington in the wake of the Allied naval bombardment of Sweaborg on August 9-10, 1855.

<sup>2</sup> Voennyi entsiklopedicheskii slovar', p. 564.

sea or their continental rivals (France and Germany) of guerre de course a la juene ecole.<sup>3</sup> The Russian model has been described as "fortress fleet", "bastioned navy," or "positional naval warfare." I would, however, argue that it is best understood as a "second arm" which supports and cooperates with Russian ground forces in a given theater to achieve a set of objectives set by "brain" of the armed force.<sup>4</sup>

Moreover, the distinct geo-strategic, climatic, and hydrographic features of each of Russia's isolated naval theaters had a profound impact on overall naval posture and upon the role of undersea forces in that posture. The fact that both the Baltic and Black Seas were relatively small theaters, easily closed by superior maritime powers, their relatively shallow depth and distinctive coasts lines -- especially the presence of skerries and archipelagoes in the Baltic -- influenced Russia's naval posture and art. The Far East, although a larger maritime arena was still a closed sea dominated by the Korean Peninsula, Tsu Shima Strait, the Japanese home islands, Le Perouse Strait,

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<sup>3</sup> One of the major problems with Western analysis of the Soviet Navy has been the attempt to fit the navy into these two paradigms, while ignoring the persistence of a Russian/Soviet paradigm in keeping with the needs of a continental power, facing peripheral but hardly decisive threats on its maritime frontiers. For a ground-breaking effort that tried to fit the history of the Soviet Navy into these models see: Robert Waring Herrick, Soviet Naval Strategy: Fifty Years of Theory and Practice (Annapolis: Naval Institute Press, 1968).

<sup>4</sup> Jacob W. Kipp, "The Second Arm" and the Problem of Combined Operations: The Russian/Soviet Experience, 1853-1945," in: Philip Gillette and Willard Frank, eds., The Sources of Soviet Naval Conduct (Lexington Books forthcoming).

Sakhalin, and the Tartar Channel. The Barents and White Sea theater, while larger in area and more open to the sea, was much influenced by Arctic conditions -- perpetual daylight and perpetual night for long periods each year, the regular advance and retreat of Arctic pack ice, and the bitter cold during the long winter. In each theater the presence or absence of a national technological base influenced the procurement and role of naval forces including undersea assets.

Faced by technological backwardness and a weak industrial base in comparison with more developed navies of the maritime powers and fearful of their intervention in these theaters, the Russian navy developed an asymmetrical response, countering battle fleets with coastal flotillas, and, unable to prevent their maritime intervention, developing complex defensive positions to neutralize their opponents superiority at sea. Russian naval officers took a distinctly evolutionary approach to naval tactics, believing that new technology reshapes tactics and that new tactics must reshape naval operations, and, in turn, affect strategy.

#### THE CRIMEAN WAR AND THE BIRTH OF RUSSIAN UNDERSEA WARFARE

While one can trace Russian interest in "submarines" back to the eighteenth century, the most appropriate starting point for serious Russian interest in "undersea warfare" was the Crimea War, a maritime war, in which industrial technology began to have an impact and during which Anglo-French naval power sought by



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various means -- amphibious assault, fleet bombardment, coastal raiding, and finally a planned flotilla attack -- to destroy Russia's naval bases and fleet infrastructure in the Black Sea, Baltic, White Sea, and Pacific.<sup>5</sup> Confronted by this maritime threat, the Russian Navy began to experiment with the deployment of Jacobi's and Nobel's contact and galvanic mines. Mine fields were placed at Kronstadt, Reval, Sweaborg, Dinamiunde, Kerch, and in the Dnieper and Bug estuaries. At Sweaborg the mine fields contained 44 galvanic and 950 small contact mines.<sup>6</sup> While these "infernal machines," as they were dubbed by the Royal Navy, sank no Allied warships during the campaigns, they did affect the conduct of naval operations. From the steam-screw ship of the line Duke of Wellington lying off Hango, Admiral Charles Napier, commanding the Royal Navy's Baltic Squadron, wrote Sir James Graham, First Lord of the Admiralty, in May 1854 to explain his decision not to attack the twenty Russian sailing ships-of-line at anchor under Kronstadt's guns. The forts' heavy guns and granite walls made shelling them like throwing "peas." To reach the Russian ships his squadron would have to pass under those guns and "their front is covered with infernal machines so that a passage thro (sic) them is very difficult."<sup>7</sup> This experience set

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<sup>5</sup> Andrew D. Lambert, The Russian War, 1854-1856: A Study in Maritime Strategy (Annapolis: Naval Institute Press, 1989).

<sup>6</sup> V. S. Shloomin, "Minnoe oruzhie--Russkoe izobretenie," in: R. N. Mordvinov, Russkoe voenno-morskoe iskusstvo: Sbornik statei (Moscow: Voenno-morskoe Izdatel'stvo, 1951), p. 288.

<sup>7</sup> Great Britain, Public Records Office, 30/16/12.

in motion a very fruitful Russian interest in mine warfare, "torpedoes," and the creation of mine-artillery positions.<sup>8</sup> On the basic of further development of mine and torpedo technology, especially the use of mines during the American Civil War and Franco-Prussian War, the Naval Ministry, at the initiative of Admiral A. A. Popov, organized a Mine School at the Officer Class on Kronstadt in late 1874 and purchased 100 self-propelled torpedoes and their design from Robert Whitehead in Austria at the unheard of price of 9,000 pounds sterling.<sup>9</sup>

#### THE RUSSO-TURKISH WAR, 1877-1878

The first war in which undersea warfare featured prominently and successfully in Russian strategy was the Russo-Turkish War of 1877-1878. That war, which came at a time when the Russian Navy was only beginning to recover from the post-Crimean demilitarization of the Black Sea, saw the Russian Navy make wide use of mine and torpedo warfare. The Russian Black Sea Fleet could not contest for command of the sea against a larger Turkish ironclad Navy, officered by British mercenaries. Therefore, the Navy adopted a three-point strategy. First, the Black Sea Fleet

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<sup>8</sup> Mina (mine) meant both mine and torpedo in Russian naval usage. Thus, Russian torpedo points were called minonoski and this term is still used to refer to destroyers [minonosets].

<sup>9</sup> Russia, Morskoe Ministerstvo, Otchet po morskому ведомству за 1874-1878 (St. Petersburg, 1880), pp. 61-80. On the development of Whitehead's self-propelled torpedo see: Edwyn Gray, The Devil's Device: The Story of Robert Whitehead, Inventor of the Torpedo (London: Seeley, Service and Co., 1975), pp. 55 ff.

under took the laying of 500 mines to cover Russian ports and estuaries to prevent coastal raids by the Turkish fleet. Russia's two Popovkas, floating batteries, and coastal artillery were deployed to cover these fields. These measures were purely for "passive defense," and given the inactivity of the Turkish Navy went untested.

Second, light naval forces, included the Guards Naval Battalion, which was brought south with steam launches and mines from the Baltic Fleet where it joined a Black Sea Detachment, were to support the advance of the Russian field army into the Balkans. These forces were used to lay mine fields in the Middle Danube and at its mouths to prevent Turkish riverain ironclad gunboats from contesting the Russian Army's crossing of the Danube. These mine fields were then covered by heavy artillery, turning each mine field into a mine-artillery position of considerable defensive power. The launches, using spar-torpedoes, carried out attacks agairst these same gunboats with some success. In a night attack on May 1, 1877 (O. S.) four craft attacks Turkish gunboats in the Machinskii Arm of the Danube and sank the monitor Selfi.<sup>10</sup>

Finally, Russian cruisers, three converted steamers of the Black Sea Steam Ship and Navigation Company, undertook "active defense" measures. The architect of this tactic, Lieutenant S. O. Makarov, became the commander of the Steamer Grand Duke

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<sup>10</sup> Russia, Armiia, Glavnyi shtab, Voenno-istoricheskia kommissia, Shornik materialov po Russko-Turetskoi voine, 1877-1878 gg. (St. Petersburg, 1902), XXIX, pp. 372-390.

Konstantin and used six steam launches armed with a combination of spar, towed, and Whitehead torpedoes to raid the Turkish Navy, attacking warships at anchor and sinking merchantmen off the coast of Anatolia. On the night of January 13, 1878, two launches from Konstantin attacked the Turkish corvette Itibakh in Batumi Harbor and sank it with a Whitehead Torpedo, the first successful attack with such a weapon. Makarov's former captain and long-time patron, Admiral A. A. Popov sent a wire to Makarov to congratulate him on this novel success, noting that it began a new era in naval affairs: "Finally, a complete success. Let me consider myself no longer your teacher but your student."<sup>11</sup> The mine and the torpedo had emerged as the chosen instruments of the Russian Navy for undersea warfare, a choice that predated the submarine and one that would shape the Russian attitude toward the submarine when it appeared. One manifestation of this situation was the decision to build coastal and sea-going torpedo boats [minonoski].<sup>12</sup>

These naval successes, however, had only a marginal influence on the successes of Russian and allied arms in the Balkans and Trans-Caucasian, which brought the war to a final and victorious conclusion. Russian naval historians were very critical of the Navy's performance during the Russo-Turkish War.

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<sup>11</sup> S, Semanov, Makarov (Moscow: Molodaia Gvardiia, 1988), p. 75.

<sup>12</sup> Russia, Morskoe Ministerstvo, Obzor deiatel'nosti morskago upravleniya pri tsarstvovanii Gosudaria Imperatora Aleksandra II-go v techenii 25 let 2 vols., (St. Petersburg: Tipografiia Morskago Ministerstva, 1880), I, 590-591.

However, this seems to have had more to do with the weakness of the fleet when war began and the inability of the Navy to play a successful role in defending the peace, once it was gained.<sup>13</sup> When Disraeli deployed challenged the Peace of San Stefano by deploying the Royal Navy's Mediterranean Squadron to the Straits, the Russian Army and Navy in the persons of Admiral Popov and General Totleben, the engineer who had master-minded Sevastopol's land defenses during the Crimean War, examined the prospects of creating a mine artillery position to block the Bosphorus. As part of that effort Makarov developed the ability to lay mines underway, using the Konstantin. However, a shortage of mines, Turkish refusal to give Russian batteries access to the most important sites, and Alexander II's unwillingness to risk a wider war, which Russia could not afford, doomed the project. However, Russian soldiers understood the threat that naval intervention had presented to Russia. Minister of War Miliutin described the strategic dilemma in the following terms: "Great Britain already effectively possesses Constantinople and the straits. . . . The British Fleet, though withdrawn from the Sea of Marmara, can return to the straits and even the Black Sea at any time. Nobody can prevent it."<sup>14</sup> One consequence of this development was a major naval program to protect Russian interests in more distant

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<sup>13</sup> E. I. Arens, Rol' flota v voine 1877-1878 gg. (St. Petersburg: Tipografiia Morskago Ministerstva, 1903), pp. 3 ff.

<sup>14</sup> D. A. Miliutin, Dnevnik D. A. Miliutina, 1874-1881, ed. by P. A. Zaionchkovskii, 4 vols. (Moscow: Gos. ordina Lenina Biblioteka SSSR, 1947-1950), III, p. 127.

theaters. To accomplish this the Naval Ministry undertook a build-up of the Baltic Fleet for distant operations especially in the Mediterranean, the development of Black Sea Fleet "at least equal to that of Turkey" and the expansion of naval presence at Vladivostok over the next two decades.<sup>15</sup>

Over the next two decades the mine and torpedo weapons improved and came to play an even larger role in Russian naval strategy. In the mid 1880s the Naval Ministry embarked upon the construction of sea-going torpedo vessels, or "mine cruisers." Mine cruisers were, in fact, fleet torpedo craft armed with two to five torpedo launchers and quick-firing guns; they displaced between 400 and 750 tons and had a top speed of 18-22 knots. A total of eight such vessels were built between 1886 and 1898.<sup>16</sup>

Following the Sino-Japanese War, 1893-1894, the Main Naval Staff faced a two new and serious challenges: the rise of the German naval power in the Baltic and the expansion of Japanese naval power in the Far East. To deal with this problem new naval construction was sent to the Far East to build up a naval presence. The naval construction program of 1895 called for new construction of capital ships and fleet auxiliaries. A supplementary program, authorizing more construction was approved in 1898. One major shift in these programs was the decision to

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<sup>15</sup> Russia. Morskoe Ministerstvo, Obzor deiatel'nosti Morskago vedomstva za 1881-1899 gg. (St. Petersburg: Tipografiia Morskago Ministerstva, 1901), pp. 8-9.

<sup>16</sup> L. G. Beskrovnyi, Russkaia armiia i flot v XIX veke (Moscow: Nauka, 1973), pp. 529-530.

reduce the priority for long-range "mine cruisers" -- five had been planned but only one was built -- and an expansion in fleet mine-layers from two to three.<sup>17</sup> The first of this class, Amur (2500 tons) was launched in 1900.

Naval planners under the leadership of Lt. Colonel N. Klado at the Nikolaevskaia Naval Academy during this period studied the problem of executing a strategic coup de main by the Black Sea Fleet, involving the landing of a Russian Army in the Bosphorus and the creation of a mine-artillery position in the south of the straits to prevent the Royal Navy from entering the Black Sea.<sup>18</sup>

Two noteworthy features of Russian naval thought during this period were an enthusiasm for the Mahanian navalism and sophisticated speculations about the impact which new technologies would have on naval tactics, especially the mutual support of various types of naval forces, and strategy.<sup>19</sup> Writing just as the first submarines had made their appearance with the navies of the world, and only a year before the outbreak of war in the Far East, Admiral Makarov called attention to the great potential of this infant weapon, and placing it within his

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<sup>17</sup> Russia, Otchet po Morskому ведомству за 1897-1900 gg. (St. Petersburg: Tipografiia Morskago Ministerstva, 1990), p. 76.

<sup>18</sup> Russia. Nikolaevskaia morskaia akademiiia, Voenno-morskaia strategicheskaiia igra 1902 g. (St. Petersburg: Tipografiia Morskago Ministerstva, 1902), pp. 31-47, 104-105.

<sup>19</sup> M. Klado, "Osny organitsii morskoi sily," Morskoi sbornik, No. 10 (October 1899), pp. ; and S. O. Makarov, "Rassuzhdeniia po voprosam morskoi taktiki," in: L. G. Beskrovnyi, ed., Russkaia voenno-teoreticheskaiia mysli' XIX i nachal XX vekov (Moscow: Voenizdat, 1960), pp. 404-409.

own tactical concepts, he looked forward to "submarine carries" taking subs to the enemy the way Konstantin had carried the first torpedo boats on her deck. With further development better boats would become another combat arm. "With time submarines will be able to take part even in engagements in the open sea."<sup>20</sup>

Interest in the development of mechanically powered submarines in Russia had been episodic during these twenty years. I. Karyshev had tried to interest the Naval Ministry in a steam-powered submarine in the early 1880s without much success.<sup>21</sup> Russian engineers and naval officers followed the development of foreign submarine technology. Following an extensive study of the problem a specially created commission, headed by Professor I. T. Bubnov recommended to the Naval Technical Committee that a prototype be built. In 1900 the Naval Ministry ordered its first submarine for the Baltic Fleet. Professor I. G. Bubnov's submarine was secretly built at the Baltic Yards in St, Petersburg, under an order for "minonosets No. 113."<sup>22</sup> Later renamed the Del'fin, she was a 113-ton boat with a speed of 9

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<sup>20</sup> S. O. Makarov, "Bronenosnye ili bezbronnye suda," Morskoi sbornik No. 4, (April 1903), pp. 15-17.

<sup>21</sup> I. Karyshev, Vygodnaia storona podvodnago plavaniia i razbor uslovii postroiki parovogo podvodnago sudna (St. Petersburg, 1882).

<sup>22</sup> G. M. Trusov, Pdovodnye lodki v russkom i sovetskem flotakh (Leningrad, 1963), pp. 73-80.

knots surfaced and 4.5 knots submerged. It was armed with two of Dzhevetsky's mobile torpedo apparatus in place of tubes.<sup>23</sup>

On the basis of Del'fin's success, the Naval Ministry placed an addition order for 10 more submarines of domestic and foreign design. The foreign models included Lake's Osetr, which was a 137-ton boat powered by two gasoline engines and two electric motors with three torpedo tubes. It had a maximum range of 300 miles on surface and 35 miles under water and a top speed of 7.5 knots surfaced and 4.5 knots submerged. Other foreign submarines acquired under this program included: Holland's Som and Losos', each 105 ton boats, armed with a single torpedo tube. Additional Lake, Holland and Bubnov boats were laid down in 1904. Two other boats, Karp and Karas, were built in Germany by Krupp. These vessels were larger -- 209 tons, faster -- 10.6 knots on surface and 8.3 submerged, and had much longer ranges 1250 miles on surface and 80 under water. The improved technical characteristics of these and the other submarines ordered in 1904 were a good indication of the rapid progress in this field of naval technology and give credence to Admiral Makarov's assessment of the submarine's promise.<sup>24</sup>

#### UNDER SEA WARFARE IN THE RUSSO-JAPANESE WAR

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<sup>23</sup> Russia, Morskoi General'nyi Shtab, Sudovoi spisok Rossiiskago imperatorskago flota, 1914 g. (St. Petersburg: Voennaia Tipografiia Imperatrity Ekatriny Velikoi, 1914), pp. 401-402, 404-405.

<sup>24</sup> Ibid., pp. 286-288, 292, 390-395, 398, 400-402, 404-405.

These second-generation submarines were not, however, completed in time for the Russo-Japanese War. Indeed, when that war began Russia had no submarines in the Far East. Among his many calls for sending a 2nd and 3rd Pacific Squadrons and the entire Black Sea Fleet to the Far East Captain 1st Rank N. Klado included the dispatch of "all the submarines and torpedo boats fit for service" to Vladivostok by rail.<sup>25</sup> Starting in the fall of 1904 the Naval Ministry did send eight submarines to Vladivostok via the Trans-Siberian and Chinese-Eastern Railroads. The trans-continental deployment of submarines and other naval assets, i. e., torpedo boats, from one maritime theater to another suitably impressed foreign observers.<sup>26</sup> At Vladivostok, the submarines served as patrol craft, operating up to 120 miles from the port. Only one contact with a Japanese warship was achieved and this was late in the war, in the spring of 1905, when Del'fin, Som, and Kasatka were in a patrol line about 70 miles from Vladivostok. These boats observed two Japanese destroyers and Som, being closest to the targets, tried to get into position for a surface attack. The destroyers, however, withdrew.<sup>27</sup>

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<sup>25</sup> N. Klado, The Russian Navy in the Russo-Japanese War (London: Hurst and Blackett, 1905), p. 219.

<sup>26</sup> Newton A. McCully, The McCully Report: The Russo-Japanese War, 1904-1905 edited by Richard von Doenhoft, (Annapolis: Naval Institute Press, 1977), pp. 195, 200, 205, 213-215.

<sup>27</sup> Istoriia voenno-morskogo iskusstva, pp. 90-91.

While the submarine did not figure prominently in the war, the torpedo and mine certainly did. From the surprise night attack by Japanese torpedo boats on the First Baltic Squadron in the outer harbor of Port Arthur in January 1904 through the seige of that fortress-port, these weapons were decisive instruments in the blockade and counter-blockade. The initial Japanese torpedo attack with 16 torpedoes crippled the Russian squadron, seriously damaging two battleships and a cruiser. However, because of its limited range and speed, torpedoes did not prove an effective weapon against moving targets during the war. The relative ineffectiveness of the contemporary torpedo and the evident potential of the contact mine led the Russian engineer M. P. Naletov to propose to the Naval Ministry the construction of submarine/minelayer. However, this initial proposal was not approved.<sup>28</sup>

Once again the mine-artillery position in a more perfected form figured prominently in the Russian struggle at sea, as did "active" mine-laying. One weakness in Russian capabilities which proved significant was a poorly developed mine-sweeping capability. While both sides suffered losses from this naval war of attrition, the most decisive blow was struck by a Japanese mine on March 31, 1904, when Admiral Makarov's flagship, the Petropavlovsk, hit a mine and sank, taking with it Russia's most effective naval officer and the spirit of the fleet. After that

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<sup>28</sup> Sovetskaia voennaia entsiklopediia (Moscow: Voenizdat, 1977-1980), V, p. 376.

loss the Russian squadron at Port Arthur lost effective leadership for an active struggle against the Japanese blockade. The attempted breakout of the squadron in June 1904, when the harbor had already come under fire from Japanese siege guns, ended unsuccessfully and the bulk of the squadron was forced to return to Vladivostok. After that the squadron became a part of the shore defense, its sailors set into the lines and its guns added to the fortress' defenses. This left Admiral Essen's small cruiser squadron at Vladivostok with the task of raiding Japanese shipping, and this could not have a decisive impact on the battles in Manchuria, where the war was finally decided.

The destruction of the Admiral Rozhestvensky 's Second Baltic Squadron at Tsu Shima in May 1905 attracted the greatest attention among naval specialists, as the model for a modern Trafalgar, a decisive fleet engagement, which annihilated an enemy fleet. However, blockade and counter-blockade at Port Arthur had already decided the campaign by preventing Russian warships from disrupting Japanese sea lines of communications and thereby guaranteeing the Japanese armies operating against Port Arthur and Mukden with a secure rear. This had set the stage for Russian defeats in Manchuria, the fall of Port Arthur, and the destruction of the First Baltic Squadron. These setbacks in conjunction with revolutionary upheavals within Russia had already decided the naval campaign well before Tsu Shima's spectacular but militarily irrelevant outcome.<sup>29</sup>

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<sup>29</sup> Ibid., pp. 86-98.

In the wake of revolution and defeat the Russian Navy found itself in a period of recovery and reconstruction, neither of which was complete by the time World War I broke out. However, there were a number of important developments in this period which left their mark on the further development of Russian undersea warfare capabilities. The first was the further development and perfection of mine warfare tactics and technology. As one Russian naval officer observed, the value of modern mine weapons had been proven in the war. "Experience of this war has demonstrated the tremendous significance of the mine weapon in armed combat at sea. Mine fields already have been used as offensive weapons. Their placement by special types of ships -- mine layers or mine carriers -- has become an established phenomenon."<sup>30</sup> The great minefields of the coming World War were thus recognized by the Russian Naval General Staff, which formulated extensive plans for initial minelaying operations in case of war.

Russia embarked on two naval constructions programs in this period. The losses of the Russo-Japanese War made such construction an imperative. In the face of growing German naval power, primary emphasis was given to Baltic Fleet and the mission of defending the Gulf of Finland. The race for new, all-big-gun battleships, like HMS Dreadnought and her German epigones, led the Russian Naval General Staff to focus upon the procurement of

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<sup>30</sup> Voennaia entsiklopediia, (St. Petersburg, 1908-1914), XV, p. 312.

similar capital ships. In addition to these new capital ships to replace those lost in the Far East, the program called for the creation of a "division of submarines" of new construction and a reserve division of older and now obsolescent boats.<sup>31</sup> The first, or "small program" was funded in 1908 and included seven submarines- four for the Baltic and three for the Black Sea. One of these reflected the intense interest which Russian naval officers had in offensive mine warfare.

The Naval Ministry in evaluating this experience concluded that the contact mine and the submarine could be combined effectively for offensive mine laying operations. In 1908 it began construction of Naletov's submarine/mine-layer, Krab, for the Black Sea Fleet. A 512-ton boat with a 300 hp diesel engine and two electric motor by Eclairage Electrique, Krab was equipped with a single torpedo tube in the bow and two mine-laying apparati in the stern. It could carry up to 60 mines. She also carried a radio with a maximum range of 25 miles.<sup>32</sup> Krab joined the fleet in 1915. Hand-in hand with the development of mine-laying capabilities, went the improvement in contact mines.

Post-1905 improvements in the technical characteristics of torpedoes brought with them a new look at the submarine. Further improvements in their design led to additional orders for larger

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<sup>31</sup> K. F. Shatsillo, Russkii imperializm i razvitiie flota: Nakanune pervoi mirovoi voiny (1906-1914 gg.) (Moscow: Nauka, 1968), p. 332.

<sup>32</sup> Sudovoi spisok Rossiiskago imperatorskago flota, 1911 g., pp. 294-295.

and faster craft. Seven boats were added to the Baltic Fleet under this program. However, since top priority was given to capital ships, procurement of these submarines in the "small program" stretched out. Funding problems pushed fleet auxiliaries back even further under the "large program" of 1912. These delays in starting this program, as the Naval Minister and Chief of the Main Naval Staff had predicted, created a particular imbalance in the Baltic Fleet for the next several years.

In general, if a slowdown in the completion of the ship building program in three years is tolerated, then in 1915 and 1916 the Baltic Fleet will be short of mine layers and submarines, not to mention cruisers . . .<sup>33</sup>

By the time funds were available the Navy's requirements for submarines in the Baltic had expanded to two divisions [six boats per division] of modern boats for the Baltic. Funding for 18 new submarines for the Baltic Fleet and Siberian Flotilla -- 12 and 6 respectively -- was finally authorized under the "large program" of 1912 and construction begun in 1914. The construction schedule called for four to be completed in 1915, eight in 1916, and six in 1917. The Bars, the first of this new class was laid down at the Baltic Yards in St. Petersburg on July 20, 1913. With a 650 tons displacement, the Bars class represented a qualitative leap in submarine capabilities, with a top speed of 18 knots surfaced and 9.57 submerged and an armament of four torpedo tubes -- two in the bow and two in the stern, 8

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<sup>33</sup> Shatsillo, p. 353.

of Dzhevetsky's mobile torpedo launchers, and a 57mm deck gun.<sup>34</sup>

In meantime, in the face of growing Turkish naval power, the Naval Ministry had decided to deploy a division of modern submarines with the Black Sea Fleet. Three boats, Nepra, Tiulen', and Morzh were laid down at Nikolaev in 1911. Three others, Narval, Kashalot, and Kit, were laid down at the Neva Yards in 1912. These submarines, slightly smaller and slower than the Bars class and armed with only four torpedo tubes and 8 Dzhevetsky apparatus, were not completed and had not entered the active fleet when war began.<sup>35</sup>

Thus, when World War I broke out the Russian Navy did not yet have modern submarine force in service. Of the 30 submarines flying the Russian naval ensign, half were obsolete: the 10 boats in service with the Siberian Flotilla and five with the Black Sea Fleet. Eight of the Baltic submarines were second-generation craft. The seven modern submarines of the Black Sea were not yet in service. This meant that all the 15 submarines ready for active service in 1914 were obsolete or obsolescent. Twelve modern submarines for the Baltic Fleet were under construction. In comparison, England had modern 76 boats in service and 23 under construction, while Germany had 28 and 16 respectively.<sup>36</sup>

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<sup>34</sup> Sudovoi spisok Rossiiskago imperatorskago flota, 1914 g., pp. 471-472.

<sup>35</sup> Ibid., pp. 499-503.

<sup>36</sup> Istoriia voenno-morskogo iskusstva, p. 104.

## RUSSIAN UNDERSEA WARFARE DURING THE WORLD WAR

Owing to the nature of the war and correlation of forces at sea the Baltic and Black Sea Fleets fought very different naval wars and used mines and submarines in very different manners. Because of the superior power of the German Navy and the incomplete nature of its building program, the Russian war plan of 1912 called for Baltic Fleet played a defensive role, creating a powerful mine-artillery position across the narrows of the Finnish Gulf between Nargen and Porkkala. On July 17, as the threat of war increased, Admiral Essen, Commander of the Baltic Fleet, ordered mine laying to begin in the Gulf. Four mine layers, covered by the battle squadron began to lay 2100 mines of the central mine position in the Gulf. More mines were added during the next month, with an additional 290 placed to block the Hango passage through the skerries. With the declaration of war on August 1, 1914, the Baltic Fleet's submarine brigade was ordered to begin patrols in front of this mine position in support of the cruiser-scouts and destroyers assigned to warn of any German attempt to break through the mine barrier. When it became clear, thanks to the capture of German naval codes from the cruiser Magdeburg in late August 1914, that the German Navy did not intend to conduct any coup de main against the Gulf but would confine its own actions to scouting and offensive mine laying, Admiral Essen under took his own active mining off the German Baltic coast to disrupt German naval movements between

Danzig-Memel and Danzig-Kiel and to sink shipping in the port of Danzig itself. The mine and submarine divisions of the Baltic Fleet were redeployed to bases in the Gulf of Riga in order to be closer to their objectives. For the task of active mine-laying against the port of Danzig submarines were employed. Between October and December 2858 mines were so laid in offensive mine operations. In 1914-1915 15 German warships and 14 transports were sunk or damaged by mines in the Baltic.<sup>37</sup> The obsolescent Russian submarines, however, proved quite ineffective. Of 23 torpedo attacks executed by Baltic Fleet submarines in the 1914-1915, not one hit was scored.<sup>38</sup> The absence of modern Russian submarines early in the war led to the decision to deploy British submarines from Russian ports.

Additional mine-artillery positions were now created to the Fleet's forward bases in the Baltic and to block German entry into the Gulf of Riga and to protect the flank of the Russian army's seaward flank. With the general retreat of the Russian Army in 1915 this became a bulwark of the Russian defense as German naval forces attempted to break through the mine barriers in August. In a battle off Ezel Island the Russian mine-artillery position, supported by the Russian squadron in the Gulf of Riga, prevented such a passage by sinking German mine-sweepers. In the face of heavy losses the German sweepers

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<sup>37</sup> Istoriia voenno-morskogo iskusstva, pp. 118-120.

<sup>38</sup> A. V. Tomashevich, Podvodnye lodki v operatsiakh russkogo flota na Baltiiskom more v 1914-1915 gg. (Moscow: Voenmorizdat, 1939), pp. 270, 276.

cleared the first mine field and the squadron began maneuvering into the Gulf, when the mine-sweepers themselves ran into a second and unswept Russian field. Elements of the German squadron were damaged by these unswept mines and the attack had to be broken off. The Admiral Schmidt, the German commander, radioed the German Naval High Command, asking for the support of modern battleships to challenge the Russian squadron and more mine sweepers:

Operation against the Gulf of Riga broken off in view of the presence of very powerful mine fields, one following another. Repeat of the breakthrough attempt can be successful, aside from rest of the measures, only in case of the participation of numerous groups of mine sweeping formations.<sup>39</sup>

On August 16 Admiral Schmidt again tried to breakthrough the Russian mine-artillery position. In addition to more mine sweepers he had the support of two modern battleships with artillery that outranged any Russian naval guns. Counting on surprise, which he would not get because of Russian signals intelligence, Schmidt sent his mine sweepers in under the cover of these ships' guns which neutralized the fire of the Russian warships attacking the mine sweepers. To increase the range of his guns, the commander of the pre-dreadnought Slava took on water on his starboard side and then preceded to close on the German ships. Under fire from the German battleships, which were still beyond the range of his guns, Slava's captain opened fire on the minesweepers but was forced to break off the battle when

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<sup>39</sup> A. I. Matveev, V boiakh za Moonzund (Moscow: Voenizdat, 1957), pp. 26-29.

Slava was hit. Over the next three days the Germans completed clearly the mine fields and engaged in combat with individual Russian light forces. Schmidt then used his force to shell Russian positions at the mouth of the River Dvina and then withdrew, fearing submarine attacks upon his capital ships. With the departure of the German ships, the Russian squadron set about laying new mine fields. Without troops and an amphibious assault no permanent damage could be done to a mine-artillery positions.<sup>40</sup>

In October 1917, as the Russian Front was collapsing in revolutionary turmoil, the German High Command assigned a huge force. Command of this Army-Navy Expedition was placed in the hands of Lieutenant General von Hutier. German planners took the Russian mine-artillery positions protecting the Gulf very seriously. General von Tschischwitz, Hutier's Chief of Staff, wrote:

The mine defense seemed to be especially well organized. This field of military activity in the Russians have always shown great ingenuity and skill, and in which their successful experiences during the Russo-Japanese War had taught them valuable lessons. Mine and mine-chains had gradually developed on a gigantic scale. The sea areas under consideration were infested with many thousands of mines, especially the avenues of approach to the Gulf of Riga and in the gulf proper.<sup>41</sup>

A fleet of 500 vessels of all types, supported by 100 aircraft, lifted an entire corps for the amphibious assault against Ezel,

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<sup>40</sup> Ibid., pp. 29-37.

<sup>41</sup> von Tschischwitz, Armee und marine bei der eroberung der baltischen Inseln in Oktober 1917 (Berlin: Verlag R. Eisenschmidt, 1931), p. 21.

Moon, and Dago Islands and the forcing the Gulf. Even though the Russian resistance had been badly disorganized by the Revolution, German naval losses to mines were still high, especially among the mine-sweepers and torpedo boats. Although costly in ships sunk and damaged by mines, torpedoes, and artillery fire, this operation ended successfully with the capture of all three islands.<sup>42</sup>

In the Black Sea the naval correlation of forces, while not favorable to Russia after the arrival of the German battle cruiser Goeben, permitted a much more active struggle for command of the sea. For the Russian Navy the most important objective was to break Turkish sea lines of communications between Constantinople and the ports of eastern Anatolia, which provided supplies for the Turkish Army operating in the Caucasus and shipped high-grade coal from the mines around Eregli and Zonguldak. In the fall of 1914 Russian warships carried out four offensive mine operations against the Bosphorus and the Anatolian ports, using four mine-layers to lay 1247 mines. The most important success of this effort were scored against the Goeben, which twice struck mines and had to lay up in drydock for repairs. With the completion of new submarines in 1915 the Black Sea Fleet began active submarine patrols off the Bosphorus and Zonguldak. Morzh made the first successful Russian submarine torpedo attack on March 3, 1915, firing two fish at a transport and scoring a hit. Such positional operations, however, did not

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<sup>42</sup> Ibid., pp. 186-187.

bring about great results because the Turks began to use small coastal sailing ships operating close to the coast, and, as a result, other submarines were sent out free patrols. Destroyers and seaplane tenders carrying aircraft were supported the submarines in these blockading operations. As Turkey began to import more oil from Rumania in 1915 submarine patrols off the Balkan coast were increased. In June of that year Tiulen' attacked an unescorted group of transports and barges off Kefken and with her deck gun sank three transport and drove a transport and two barges aground. By mid-1916 the Black Sea had sunk several warships, 60 transports, and about 3000 sailing craft by all means, but had not succeeded in cutting Turkey's sea lines of communications in the Black Sea.<sup>43</sup>

In the summer of 1916 the Fleet mounted a major offensive against the Bosphorus. This offensive involved the entire fleet in active mining operations. On July 16, as a prelude to the mining operation, Nepra penetrated the Turkish mine fields covering the strait and mapped a course for Krab to follow. Two days later Krab made the same passage and entered the straits and laid two lines of 30 mine each. On July 21 Russian destroyers, under the protection of the battle squadron made the first of three mine laying missions. More followed during the rest of the year and into 1917, laying more than 4000 mines in 17 fields. While these actions reduced Turkish naval activity in the Black Sea to a standstill and permitted Russian naval forces to take an

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<sup>43</sup> Ibid., 120-123.

active role in supporting the maritime flank of the Caucasian Army in its advance up the coast, including the execution of three amphibious landings to turn the coastal flank of the Turkish defenders. The mine and submarine blockade did not cut the coastal traffic with Anatolia, even though shallow-draft mine-layers --converted grain carriers from the sea of Azov-- were used.<sup>44</sup>

As was the case in the Baltic, the revolutionary upheaval had a radically impact upon the Fleet's ability to conduct effective naval operations in 1917. The Naval Ministry laid plan in 1916 to construct a new series of larger, faster, submarines. However, the Revolution of February 1917 and the ensuing unrest precluded any progress in this direction.<sup>45</sup> Thus, the promising foundation laid in three years of war came to nothing.

#### SOVIET UNDERSEA WARFARE CAPABILITIES AND ART:

##### THE INTER-WAR PERIOD

Although the Bolshevik state did inherit some naval power in the Baltic when it seized power in October 1917, the experience of the Civil War, 1918-1920, added nothing to Russian/Soviet concepts concerning undersea warfare. The persistence of komitetshchina and violence against officers among the revolutionary sailors of the Baltic Fleet reduced prospects for

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<sup>44</sup> Ibid., pp. 123-127.

<sup>45</sup> L. G. Beskrovnyi, Russkaia armiia i flot v nachale XIX v. (Moscow: Nauka, 1986), p. 156.

the new regime to recruit tsarist naval officers as specialists. Furthermore, the continental nature of the struggle and the massive disruption of the national economy combined to reduce significantly naval interest in the subject. The contest, especially in the face of the powerful navies of the intervening powers, was in the hands of a very small Red Fleet in action at sea and confided its efforts to supporting the Red Army via 13 ad hoc riverain and lake flotillas. P. Stasevich, a veteran of that war and editor of Morskoi sbornik, described the correlation of forces in the following terms:

The struggle on the seas was exceptionally difficult for us. The enemy had the advantage over us, carrying the experience of the world war, having warships in organized formations fully equipped and manned by well-trained crews and experienced officers and with unlimited supplies in the rear. We could only counter this threat sporadically with the ships that remained in our hands in ad hoc formations and this had major defects in the most basic things -- in the fire power of the ships, in reduced speed, in the shortage of fuel, with quite ad hoc crews, in the absence of experienced commanders, and with a disrupted rear, but with the greatest desire for victory and the ability to translate that desire into life.<sup>46</sup>

While mine warfare persisted throughout the Civil War in the Baltic Theater, submarines played less and less of a role as their equipment broke down and the boats ceased to function. In the face of the presence of the Royal Navy, the Baltic Fleet could not even challenge the scratch naval force of Estonia in 1918. By 1919 the Baltic Fleet had been reduced to a hollow,

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<sup>46</sup> P. Stasevich, "Rechnye flotilii i morskoi flot v grazhdanskuiu voinu 1918-1920 gg.," in: A. S. Bubnov et al, eds., Grazhdanskaia voina, 1918-1920 gg. (Moscow: Voennyi Vestnik, 1928), pp. 182-183.

lifeless shell. The dreadnought, Andrei Pervozvannyi, could make only eight knots. The so-called "active detachment" consisted of one destroyer, two patrol craft, and four mine-sweepers. No submarines were serviceable.<sup>47</sup> Cut off from oil and coal, the fleet almost became a manpower pool, rather than a fighting force. In the face of the advance of Yudenich's White forces, supported by Estonia and the Royal Navy, the Baltic Fleet was thrown into the defense of Petrograd.

Rhetoric about "defending the revolution" had very little to do with reality of the fleet's combat potential. Party strength within the Submarine Division was among the highest in the Baltic Fleet -- 210 members out of 775 men. The next largest group of Party cadres were at the officer-training school for the Fleet with 205 members.<sup>48</sup> The chairman of the general assembly of the Submarine Division, A. Smirnov, and its secretary V. Grechkovsky, might sign a protocol in which they declared: "The division proposes to use all its efforts in order that the boats of the division in the shortest time could go forth to meet the enemy, and not only in their submarines can they go forth to meet the enemy but, if it is required, all as one are ready joint the land front with rifle in hand."<sup>49</sup>

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<sup>47</sup> Ibid., p. 206.

<sup>48</sup> N. A. Markina and T. S. Fedorova, eds., Baltiiskie moriaki v bor'be za vlast' sovetov v 1919 g. (Moscow: Nauka, 1974), p. 208.

<sup>49</sup> Ibid., p. 97.

At the same time the Naval General Staff assessed the submarine situation in the Baltic in the following terms:

"Submarines: Volk -- ready; Vepr, Tigr, Pantera, Rys', Tur, Ersh, enter service when repairs have been completed."<sup>50</sup> The most important of these submarines was Pantera which played a role in combined operations against enemy shipping around Koporsky Bay. These were, however, small-scale, improvised, actions, connected directly to the situation on the Petrograd Front. The one submarine success was the attack of Pantera on two British destroyers at anchor on August 31, 1919. Pantera submerged, attacked with two torpedoes, and scored one hit on the Victoria.<sup>51</sup>

While the submarine did not figure prominently in the combat actions of the many Soviet flotillas, the mine weapons certainly did. This was especially true for the Azov Flotilla which was created in 1920 and had the task of preventing Baron Wrangel's White naval units from carrying out landings on Azov littoral. When in August 1920 Wrangel's fleet landed General Ulagai's 9100-man expedition at Ekaterinodar [now Krasnodar] to try to raise a White resistance in the Kuban, A. V. Nemitts, the Commander of the Naval Forces, ordered the Azov Flotilla to isolate the beachhead. An additional attempt to block the invasion force with a mine barrier failed -- the mines were laid after the enemy forces had passed. However, when, on August 19, the White naval

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<sup>50</sup> Ibid., p. 98.

<sup>51</sup> Istoriia voenno-morskogo iskusstva, pp. 155-156.

forces withdraw from the beachhead at Akhtari, five patrol boats of the Azov Flotilla approached the beach and began laying mines. More mines followed on August 24 and the beach was shelled by gunboats.<sup>52</sup>

Following the Civil War the Red Navy fell on particularly hard times. Geo-strategically, the naval frontiers of the Soviet state were in worse conditions than at any time since the Northern War, having been driven back to the eastern part of the Gulf of Finland. In the Black Sea both the Soviet Union and Turkey were too weak to prevent the Navies of the victorious Entente from passing through the straits. Vladivostok was still occupied by Japanese forces. Politically, the Kronstadt Mutiny raised serious questions about naval personnel's loyalty to the Soviet state and the Communist Party. Demobilization forced the reduction in personnel. Economic disintegration and financial crisis precluded any immediate invest in a Navy which had steadily deteriorated during the conflict. The nation's ship yards were in utter disorder. The remaining capital ships had been reduced to floating batteries.

The immediate post-war years were devoted to the rehabilitation of the existing naval forces and a debate about the sort of Navy which the Soviet Republic would require as the first socialist state, encircled by hostile capitalist powers. Unlike the pre-revolutionary period when the Navy had its own separate ministry to represent its interests. During this period,

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<sup>52</sup> Ibid., p. 161-162.

as the Soviet state embarked upon the NEP, naval officers began to debate the nature of the navy needed by the Soviet state. Some have seen this as a debate between "old" and "young" schools in which former tsarist officers now serving as Soviet voenentspsy championed a balanced, oceanic, capital-ship navy. These theorists were opposed by young Red naval commanders who favored light forces, especially submarines and coastal defense craft.<sup>53</sup>

While this is true to some extent, some mention should also be made of the role played by Frunze and other staff officers and party activities in promoting the study of future war. The entire category of future war [budushchaia voina] drew its content from the need for Soviet Russia to have a unified military doctrine, defining the probable threat, likely nature of the war, and its course and outcome. Under this conception the Red Navy's role was support of the Red Army on its maritime flank in a decisive, protracted, struggle against a coalition of capitalist powers. Naval forces were to be threat-specific and designed to fight "little wars" in which the operational content would be joint operations, coastal defense, and sea denial. V. I. Zof, Chief of Naval Forces of the RKKA, made this point in surveying the international situation confronting the USSR in 1925.<sup>54</sup>

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<sup>53</sup> Herrick, pp. 9-27.

<sup>54</sup> V. Zof, "Mezhdunarodnoe polozhenie i zadachi morskoi oborony SSSR," Morskoi sbornik Mo. 5 (May 1925), pp. 1-17.

When resources did become available for naval construction in the 1926, a six-year, ship-building program was laid out, reflecting these concepts and placing considerable emphasis upon mine and submarine capabilities. The construction of submarines ranked very high in the Navy's building program in the 1920s. In August 1923 a commission was formed to develop a competitive design for a new submarine. The new ships were expected to be able to attack ocean and sea lines of communications. The preferred weapon for such attacks remained the mine. The plans for the first Soviet-built submarine included provision for the following: installation of torpedoes, ranging equipment, and sound locators; improvement of navigational and maneuvering qualities; and increasing the diving, depth, and range of the submarines. In March 1927 the keels of the first three Soviet submarines of the Dekabrist (D) class were laid down and in the fall of 1931 these submarines were commissioned in the Baltic Fleet. During this period submarine mine layers of the Leninets (L) class were being developed. Unlike the Dekabrist, they had 2 mine tubes for the dry storage and laying of 20 mines, instead of 2 aft torpedo tubes. The building of such submarines was a major challenge for Soviet designers and for a shipbuilding industry just recovering from revolutionary crisis and civil war.<sup>55</sup>

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<sup>55</sup> M. M. Kir'ian et al, Voenno-tekhnicheskii progress i Vooruzhennye sily SSSR: Analiz razvitiia voorzheniiia, organizatsii i sposobov deistviiia (Moscow: Voenizdat, 1982), pp. 64-65.

Having embarked upon the construction of a new navy to meet the needs of "little war" in the Baltic and Black Seas, naval theorists began to develop a strategy to employ such forces. Stimulated by Frunze's call to study and prepare for future war, naval authors began to address the role and place of naval forces in such a war. Two key points dominated such thinking. First, a future war would test the state's industrial and technological base. Second, the role of naval forces on the so-called "naval front" would be part and parcel of the struggle ashore. V. Perettersky wrote in 1929:

The so-called naval front, in our opinion, is only a part of the general front of armed conflict, the front of war, i.e., as a continuation of the land front it should be united with by a common command, a common plan of direction. Therefore, all operations that take place in it must be coordinated and tied with the operations, taking place on the land front.<sup>56</sup>

Since Soviet military thought at this time considered a future war to be a desperate, protracted struggle against a coalition of capitalist powers and successor states, naval operations were seen as subordinated to the operational situation ashore. The fleets would either cover the flank of an advancing Red Army, support amphibious operations, and disrupt enemy sea lines of communication in theater or they would be drawn into "operations of a passive, defensive nature such as the so-called naval positional war, with the use of mine and net (anti-submarine) barriers. It seems to us, the area for using these later items will broaden to an unprecedented scale. Thus, the tasks of positional warfare in a future

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<sup>56</sup> V. Perettersky, "Noyye sredstva flotov v voine budushchego," Voina i revoliutsiia No. 2 (February 1929), pp. 119-120..

war will, in our opinion, be used to a very significant degree.<sup>57</sup>

While the form of operations looked very much traditional, Perettersky put a new content into them by emphasizing the role of new weapons in naval warfare. Given the rapid progress of aviation, pride of place went to aircraft and the aircraft carrier. While the submarine could no longer be considered a new weapon, it had become a very serious one and a threat to surface fleets and merchant shipping. The struggle between the submarine and anti-submarine weapons had developed into a deadly competition. Study of the German submarine warfare in the Atlantic was combined with an assessment of the pace of technological change in submarines. Perettersky pointed to the third generation boats and compared those of 1915 with those of 1925. The new boats were larger, faster on surface and submerged, armed with heavier guns and better torpedoes, and had longer ranges of operation.<sup>58</sup> Regarding the submarines role in future war, he concluded that, like aviation, it alone would not be decisive. But its role would be significant. The submarine weapon was still evolving and so the final word on its role could not yet be written.

The mine remained the central instrument for naval positional war. Experience of World War I confirmed this as did the on-going improvements in mine capabilities. Perettersky noted

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<sup>57</sup> Ibid., p. 121.

<sup>58</sup> Ibid. pp. 125-126.

that great naval powers like the United States often ignored the mine and, as a consequence "major failures" from which they were able to recover because they possessed such large and powerful industrial bases. He recommended that the Soviet Navy should follow Russian naval experience and look to the improvement of the mine and torpedo weapons.<sup>59</sup>

Acquiring new vessels and examining the role of naval forces in future war were first steps in the rival of naval power. Another part of that equation was the development of tactical concepts to use these ships and weapons to fulfill such tasks and missions as a future war would impose. In 1930, one year after the Red Army published new field regulations, the Soviet Navy got new combat regulations. These regulations emphasized political reliability of the force to conduct class struggle and "the closest operational mutual support with the ground forces of the Red Army."<sup>60</sup>

Mine and submarine forces figured prominently in this document. Under the term "equipping of the naval theater" the regulations listed the build-up of reserve supplies and combat equipment, which included mine-position means, means of shore service of observation and communications, and hydrographic support. Mine-positional equipment was composed of:

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<sup>59</sup> Ibid., p. 126-127.

<sup>60</sup> USSR, Naordnyi Komissariat po voennym i morskim delam, Boevoi ustav voenno-morskikh sil RKKA (Moscow: Gosudarstvennoe Izdatel'stvo, Otdel Voennoi Literatury, 1930), p. 7.

a)mines of various designation for the laying of mine barriers both in the open sea as well as in coastal zones of the theater; b) boom defenses against destroyers and torpedo boats; and c) net defense for the struggle with submarines and against torpedoes.<sup>61</sup>

The concept of naval combat found in the regulations had much in common with the terminology of the RKKA, "meeting engagement, decisive direction, breakthrough, and pursuit." The emphasis was upon combat as the means of defeating and destroying the enemy.

Any combat has the task of bringing defeat to the enemy, but only a decisive offensive on the decisive direction, culminating in a vigorous pursuit will lead to the complete destruction of his forces and means.

Defense can only weaken the enemy, but can not destroy him.. In order to decisively defeat the enemy one must strive to turn the defensive battle at a favorable moment into an offensive.<sup>62</sup>

Such a battle was viewed as a combined-arms affair with capital ships still playing the decisive role. However, submarines and aviation were given major roles not directly associated with supporting the capital ships. Indeed, it was necessary to create certain closed regions where friendly submarines could hut freely without risk of attacking other friendly warships.<sup>63</sup> The submarine, unlike other naval systems, could and should operate independently, even in decisive naval battles. However, the Soviet Navy contemplated two uses for submarines in naval battles. Under certain conditions the massed use of submarines could be employed to carry out the main

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<sup>61</sup> Ibid., p. 33.

<sup>62</sup> Ibid., p. 93.

<sup>63</sup> Ibid., p. 120.

strike against the enemy. On the other hand, submarines could also be used to support a main attack by other naval forces or to cover the withdrawal of other naval forces in case of failure.<sup>64</sup>

Even in the case of using submarines as "cruiser-raiders" the Combat Regulations drew a sharp distinction between such raids where submarines acted independently and where they had support from surface ships and aviation. In the former case they could inflict damage but could not exploit the damage to a decisive outcome. They were a weapon of attrition. On the other hand, if submarines could operate with support, their result might have a decisive impact on the battle at sea. The Combat Regulations identified four missions for submarine raiders, all in keeping with the concept of attrition at sea:

- a) creation of a difficult regimen for the enemy to use sea lines of communication in the theater, forcing enemy units to convoy and provide escorts and generally take a host of measures necessary for support and making the conduct of combat operations more difficult for him;
- b) the destruction of separate combat targets at sea on departure from ports, returning to port, or standing at anchor in harbors and roadsteads;
- c) attack upon enemy transports carrying an amphibious assault force while at sea or during debarkation;
- d) actions against sea lines of communications.<sup>65</sup>

By the end of the First Five-Year Plan the Soviet Navy had acquired six new submarines. In the Second Five-Year Plan this number climbed sharply. While naval construction did, indeed, expand for many classes of ships during this period, the submarine still enjoyed a special place in the Soviet arsenal for

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<sup>64</sup> Ibid., p. 121.

<sup>65</sup> Ibid., p. 172.

future war. It was the cheap answer to the battleship. M. N. Tukhachevsky, one of Red Army's most original thinkers and in 1931 the Deputy Commissar and Chief of the Armaments Directorate, flatly stated: "After the appearance of submarines battleships inevitably loss significance. At the present time the means of struggle against capital ships has increased significantly." Indeed, the combination of aviation, submarine, and light surface forces was the naval equivalent of the tank, mechanized infantry, tactical aviation combination, which Tukhachevsky saw as revolutionizing land warfare.<sup>66</sup>

These assumptions had a major impact on submarine construction during the 2nd Five-Year Plan. Construction of medium submarines of the "Shch" class began. These vessels were about the same size and carried the same number of torpedo tubes as the Bars class but were inferior in surface speed. A second medium-sized class of boats, the "S" class entered service. Its speed, range, and armament (torpedoes and deck guns) were superior to both Bars and Shch. With a displacement of 750 tons and a top speed of 20 knots on surface, these boats were coming close to reaching the performance norms set by Bubnov for a final generation of wartime submarines back in 1916.<sup>67</sup>

One major problem for the Soviet Navy was the isolation of its potential maritime theaters one from each other. To answer

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<sup>66</sup> M. N. Tukhachevsky, "Novye voprosy voiny," in: Izbrannye proizvedenia (Moscow: Voenizdat, 1964), II, p. 188.

<sup>67</sup> Kir'ian, p. 98.

this problem the government invested in infrastructure like the Belomor Canal, linking the Northern Fleets and Baltic, and the development of naval assets which could be moved over interior land lands from theater to theater. One such asset was land-based aviation. Another was small submarines. In addition to medium-size boats the Soviet Navy also acquired a series of small, coastal defense, submarines which could be shipped by rail from theater to theater and assembled upon arrival. Displacing 205 tons and carrying two torpedo tubes, these "M" class boats were of only marginal use in open sea operations; they could, however, effectively support mine-artillery positions.<sup>68</sup>

Finally, the Soviet Navy also acquired its first oceanic submarines, i. e., large submarines with the capacity for long-range independent raiding. In 1934 the first "K" class was laid down with a displacement of 1390 tons, a speed on surface of 18 knots and submerged of 10 knots, and armed with 10 torpedo tubes [six forward and four aft] and with several deck guns [2 x 100 mm and 2 x 45 mm]. These were the first Soviet boats which could operate independently, over a long period of time, at long range.<sup>69</sup>

Thus, during the Second Five-Year Plan the Soviet Navy acquired 137 submarines, of which the majority (72) were medium-sized vessels. The number of oceanic submarines constructed at this time was only 13 boats. This construction, while quite

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<sup>68</sup> Ibid., p. 98-99.

<sup>69</sup> Ibid., p. 99.

large by any standards, did not keep pace with the expanding Soviet naval requirements as the international environment worsened and the USSR had to ponder the possibility of war in Europe and Asia. One response to this situation was the upgrading of the Siberian Squadron to a third Fleet, the Pacific Fleet, in 1937. Given the conditions of Japanese-Soviet relations and Japan's aggression against China, it appeared quite likely that this fleet would have to counter a superior Japanese Navy. In Europe, the Anglo-German Naval Agreement set the stage for the revival of German naval power in the Baltic. Only in the Black Sea had international developments removed the immediacy of the threat and created favorable conditions for Soviet naval operations.

In 1937, one year after the publication of the new Red Army Field Regulations, the Soviet Navy issued new temporary combat regulations. The notion of conducting attrition operations against the enemy fleet, his shores, and sea lines of communication was now referred to as naval operational art by which was meant the means of controlling the application of such combined arms means and of supporting their combat actions. These regulations treated submarines as a powerful weapons system capable of "long combat operations and executing powerful and concealed torpedo and mine strikes against enemy warships and

transports independent of the numerical correlation of forces in the battle."<sup>70</sup>

The build-up of naval power, especially the proclamation of the objective of creating an "oceanic navy" in 1937, was much conditioned by this threat environment. Axis naval intervention against Republican Forces in the Spanish Civil War convinced Soviet naval officers that there was a need to re-appraise the mix of naval forces. The Soviet Union embarked upon the procurement of new capital ships and explored the development of aircraft carriers. This ambitious program, which had to be curtailed when war loomed as an immediate prospect, further expanded the Soviet Navy, but did not recast its essential character as a set of four theater-specific fleets, prepared for positional warfare in support of the coastal flank of the Red Army. Undersea warfare, whether active or passive, with mines or torpedoes, had been subsumed under this larger definition of naval power and its application in each theater.

At the same time, developments in supporting services, especially electronics, had not kept pace. The Soviet Navy had not developed magnetic mines or radar.<sup>71</sup> Stalin's blood purges of the military and scientific-technical elites during this period had a profoundly negative impact upon naval preparedness.

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<sup>70</sup> Vremennyi boevoi ustav Morskikh Sil RKKA p. 15 in: Kir'ian, pp. 122-123.

<sup>71</sup> V. I. Achkasov and N. B. Pavlovich, Sovetskoe voenno-morskoe iskusstvo v Velikoi Otechestvennoi voine (Moscow: Voenizdat, 1973), p. 18.

Leading scientific technical figures found themselves under arrest "enemies of the people." Axel Berg, the Director of the Navy's Scientific-Technical Institute on Communications, was arrested and spent nearly three years in prison. Berg, who served on British and Russian submarines during World War I, had been a Red submarine commander after the October Revolution and played a leading role in developing Soviet naval regulations covering the employment of submarines. In the mid-1920 after graduating from the Naval Academy he had shifted careers to work in the area of radio communications and had done major work on direction finding and signal transmission. Such arrested temporarily decapitated many research institutions and undermined support for both the Red Army and Navy at a crucial period in technological development.<sup>72</sup>

#### CONCLUSION: SOVIET UNDERSEA WARFARE CAPABILITIES AND CONCEPTS ON THE EVE OF THE GREAT TEST

Soviet undersea warfare capabilities and concepts on the eve of the Great Patriotic War were deceptive in many ways. In terms of sheer numbers the Soviet Navy possessed the largest submarine force in the world. Yet, most of these vessels were designed to operate as coastal defense craft in support of mine-artillery positions to protect Soviet shores and bases in each theater from direct enemy assault. Moreover, Soviet submarines and mines lagged behind the boats of other navies in certain crucial

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<sup>72</sup> N. Fedorenko, "Tri zhizni Akselia Berga," Pravda, (March 6, 1972); and Nedelia, (3-9 November 1963).

technologies, and this further undercut their combat capabilities. The concepts covering the combat employment of submarines and mines, while dressed in RKKA terminology and infused with the rhetoric of a revolutionary military doctrine, in keeping with the Soviet Union's vanguard role as the state of the victorious proletariat, drew heavily upon concepts articulated and developed by tsarist naval theorists and practitioners. The strategic situation of the Soviet state in comparison with tsarist Russia in two theaters i. e., the Baltic and Pacific, was far worse than before World War I. The Soviet Union faced diplomatic isolation and, the emergence of a coalition of hostile powers in the Anti-Comintern Pact. The radical decline in the defensibility of its naval frontiers in these two theaters, further undermined the viability of these concepts of undersea warfare. The consequences of this situation were, not, however, immediately apparent in the late 1930s.

The first tests of this newly constructed navy proved inconclusive. The Soviet Pacific Fleet mobilized for war in 1938 during the fighting at Lake Khasan and then again in 1939 during the summer fighting over Khalkhin-Gol. In both cases the outcome of the fighting did not involve a wider war. In the winter of 1939-1940 the Baltic Fleet took part in the Soviet-Finnish War. Boats of 1st and 2nd Submarine Brigades of the Baltic Fleet were deployed in the most unfavorable sea and weather conditions in the Gulf of Bothnia and the Finnish Gulf. The gulfs were divided into 19 zones, and there the boats acted alone and without

adequate intelligence support and reconnaissance. These boats occupied their positions only during the short daylight hours and at night recharged their batteries. For the entire war Soviet submarines claim to have sunk only six transports.<sup>73</sup> Western naval historians have been able to confirm only three sinkings by Soviet submarines.<sup>74</sup> This very meager result suggested that there were serious tactical, combat support and control problems for Soviet submarines. The Great Patriotic War came, however, before these could be addressed. They were serious problems which had to be addressed under the difficult circumstances of the German attack upon the Soviet Union and terrible tactical-operational situation in the Baltic.

The number, composition, and deployment of Soviet submarine divisions on the eve of the Great Patriotic War suggest the role these forces were to play in operations in each maritime theater. In 1941 the Soviet Navy had 218 submarines in service. Of these, the largest force was with the Pacific Fleet, 91 boats. The Baltic Fleet had the second largest force of submarines, 65 boats, with the Black Sea Fleet next, 47 submarines, and the Northern Fleet the least, 15 boats.<sup>75</sup> While these numbers are impressive, the mix of forces, especially the large number of

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<sup>73</sup> V. N. Chernavin, "Organizatsiia boevogo obespecheniya podvodnykh lodok (Po optyu Velikoi Otechestvennoi voiny)," Voenno-istoricheskii zhurnal, No. 7, (July 1988), pp. 22-23.

<sup>74</sup> J. Rohwer and G. Hummler, Chronology of the War at Sea, 1939-1945 two volumes (New York: Arco Publishing Co., 1972), I, pp. 13,15.

<sup>75</sup> Achkasov and Pavlovich, pp. 15, 23-29.

small boats and the few large boats, limited the contribution which the submarines could make. The forward bases gained by Stalin, thanks to the Nazi-Soviet Pact of 1939, the settlement of the Winter War with Finland, and the annexation of the Baltic Republics were either lost in the initial period of war or rendered ineffective in supporting submarines.

The initial Wehrmacht victories in the Baltic states and the Ukraine, compromised the Soviet defensive positions in each theater, cost the Soviet Navy the use of her major yards and works, and undermined operational conditions for Soviet naval forces. The submarines of the Baltic Fleet had to transit through some of the most deadly mine fields of the war where enemy air and naval forces commanded the surface. In summer perpetual daylight made any submarine on the surface an easy target. In winter while darkest offered concealment, pack ice and freezing temperatures made passage a challenge to even the most skilled commanders. These crews had only the shallow waters between Kronshtadt and Leningrad in which to train. For 900 days they returned from patrol they to a city under siege, subject to German air and artillery attack, and lived among a civilian population which was gradually being ground down by hunger and privation. Under these difficult conditions Soviet submarine performance in the Baltic during the initial period of the war was marginal and during the next phase of the war deteriorated. The situation in the Black Sea was better, given the absence of a

substantial German naval presence in the initial period of war, but deteriorated rapidly after the isolation of Sevastopol and its later fall. The wonder is that Soviet submarine crews accomplished as much as they did.